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REMARKS

Pending Claims

Claims 65 and 80 have been amended in order to more clearly describe Applicants' invention. More specifically, each of these claims has been amended to further clarify the group "polymer" as well as to recite that X and X' are directly attached to the pigment. No new matter has been added. Thus, claims 57-67, 70-72, 80, 82, and 84-86 are pending.

Non-Statutory Double Patenting Rejection

The Examiner has rejected claims 57, 59-62, 65-67, 80, 82, and 84-85 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 8-9, and 11-14 of U.S. Patent No. 6,478,863 (Johnson et al.). In paragraph 3 of the Office Action, the Examiner states that, although the conflicting claims are not identical, they are not patentably distinct from each other. In particular, the Examiner states that Johnson et al. discloses a modified pigment comprising a pigment having attached at least one aromatic group X wherein X is substituted with at least one group of the formula $-\text{[Nion]R}$, wherein [Nion] is a polymer of alcohol. The Examiner also states that inks, including inkjet inks, comprising the above pigment and a liquid vehicle are also disclosed.

The Examiner notes that the difference between Johnson et al. and the present claimed invention is that a) Johnson et al. discloses polymer of alcohol attached to the pigment while the present claims disclose the use of polyvinyl alcohol and b) there is no disclosure in Johnson et al. that the ink comprises additional polymer, as recited in present claim 80.

However, with respect to difference a), the Examiner states that one of ordinary skill in the art would have recognized that the broad disclosure of "polymer of alcohol" in Johnson et al. encompasses a polymer having alcohol groups, which clearly encompasses the specific polyvinyl alcohol present claimed. The Examiner also states that it would have been within the

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skill level of one of ordinary skill in the art to recognize that the choice of the polymer that is attached to the pigment would effect the properties of the pigment and would choose a specific "polymer of alcohol" based on the desired properties of the modified pigment. The Examiner therefore concludes that it would have been within the bounds of routine experimentation as well as within the skill level of one of ordinary skill in the art to choose polyvinyl alcohol as the specific "polymer of alcohol" depending on the desired properties of the modified pigment and its desired end use.

With respect to difference b), the Examiner states that Johnson et al. discloses that the ink does in fact utilize an additional polymer such as polyester, styrene-acrylic acid copolymer, styrene-acrylate copolymer, etc., noting that the motivation for using such a polymer is as a binder. The Examiner concludes that it would have been obvious to one having ordinary skill in the art to use additional polymer in the ink of Johnson et al. in order to improve the adhesion of the ink to a substrate, thus arriving at the present invention.

A Terminal Disclaimer is filed herewith. In view of this filing, Applicants respectfully request that the double patenting rejection of claims 57, 59-62, 65-67, 80, 82, and 84-85 be withdrawn.

Rejection of Claims under 35 U.S.C. § 103

Sano et al. in view of Cooke et al.

The Examiner has rejected claims 65-67, 80, 82, and 84-85 under 35 U.S.C. § 103(a) as being unpatentable over Sano et al. (U.S. Patent No. 5,690,723) in view of Cooke et al. (U.S. Patent No. 6,110,994).

In paragraph 5 of the Office Action, the Examiner states that Sano et al. discloses an ink jet ink comprising an aqueous vehicle, a polymer including a copolymer obtained from styrene and acrylate, and a pigment that is surface treated with a resin.

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The Examiner notes that the difference between Sano et al. and the present claimed invention is the requirement of specific types of pigments. The Examiner therefore relies on Cooke et al., stating that this reference discloses a modified pigment having an attached group of the formula $\text{Ar-CO}_2\text{-R}$ where Ar is an aromatic group and R is a polymer such as a polyamide or polyester and that it is further disclosed that the polymer can include aromatic or alkyl groups. The Examiner also states that such pigments are suitable for use in aqueous coatings and that the motivation for using such pigments is that they possess improved dispersibility and can improve colorfastness and abrasion resistance of the coating, which the Examiner states are also properties particularly relevant to ink compositions. The Examiner therefore concludes that, in light of the above, it would have been obvious to one of ordinary skill in the art to use the pigments of Cooke et al. in the ink of Sano et al. in order to produce an ink with good colorfastness and abrasion resistance, thereby arriving at the claimed invention.

On page 9 of the Office Action, the Examiner states that if claims 65 and 80 were each amended to i) delete polyester and polyamide from the list of "polymer" and ii) insert that X and X' can be the same or different "and are directly attached to the pigment", the rejections under 35 U.S.C. § 103(a) would be overcome. While Applicants respectfully disagree with the rejection, Applicants have amended claims 65 and 80 as suggested by the Examiner in order to advance prosecution of this application.

Applicants therefore believe that claims 65-67, 80, 82, and 84-85 are patentable over Sano et al. in view of Cooke et al. and respectfully request that this rejection be withdrawn.

Sano et al. in view of Cooke et al. further in view of Johnson et al.

The Examiner has rejected claims 70-72 under 35 U.S.C. § 103(a) as being unpatentable over Sano et al. (U.S. Patent No. 5,690,723) in view of Cooke et al. (U.S. Patent No. 6,110,994), as applied to claims 65-67, 80, 82, and 84-85 above, and further in view of Johnson et al. (U.S. Patent No. 5,837,045).

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In paragraph 6 of the Office Action, the Examiner states that difference between Sano et al. in view of Cooke et al. and the present claimed invention is the requirement in the claims of modified pigments comprising a second chemical group. The Examiner therefore relies on Johnson et al., stating that this reference, which is drawn to modified pigments, discloses pigments having attached chemical groups such as carboxyphenyl or sulfophenyl in order to produce pigments that are more easily dispersible and have greater stability than untreated pigments. The Examiner concludes that, in light of the above, it would have been obvious to one of ordinary skill in the art to attach chemical groups such as carboxyphenyl or sulfophenyl to the modified pigments disclosed by Sano et al. in combination with Cooke et al. in order to produce pigments with improved dispersibility and stability, thereby arriving at the claimed invention.

On page 9 of the Office Action, the Examiner states that if claims 65 and 80 were each amended to i) delete polyester and polyamide from the list of "polymer" and ii) insert that X and X' can be the same or different "and are directly attached to the pigment", the rejections under 35 U.S.C. § 103(a) would be overcome. While Applicants respectfully disagree with the rejection, Applicants have amended claims 65 and 80 as suggested by the Examiner in order to advance prosecution of this application.

Applicants therefore believe that claims 70-72 are patentable over Sano et al. in view of Cooke et al. and further in view of Johnson et al. and respectfully request that this rejection be withdrawn.

Sano et al. in view of Hall et al.

The Examiner has rejected claims 65-67, 80, 82, and 84-85 under 35 U.S.C. § 103(a) as being unpatentable over Sano et al. (U.S. Patent No. 5,690,723) in view of Hall et al. (U.S. Patent No. 5,552,458).

In paragraph 7 of the Office Action, the Examiner states that Sano et al. discloses an ink jet ink comprising an aqueous vehicle, a polymer including a copolymer obtained from styrene and acrylate, and a pigment that is surface treated with a resin.

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The Examiner notes that the difference between Sano et al. and the present claimed invention is the requirement of specific types of pigments. The Examiner therefore relies on Hall et al., stating that Hall et al. discloses a modified pigment comprising pigment having attached group of the formula $R^2-Si(R^1)(R^3)-AX$ where R^2 is a C_1-C_{10} alkyl group, A is a divalent radical, and X is attached to polymeric backbone. The Examiner also states that the polymer includes polyurethane and polyester and that this reference further discloses that the pigment is suitable for use in inks to produce dramatic visual effects not found in other pigments. The Examiner concludes that, in light of this, it therefore would have been obvious to one of ordinary skill in the art to use the pigments of Hall et al. in the ink of Sano et al. in order to produce inks with dramatic visual effects, thereby arriving at the present invention.

On page 9 of the Office Action, the Examiner states that if claims 65 and 80 were each amended to i) delete polyester and polyamide from the list of "polymer" and ii) insert that X and X' can be the same or different "and are directly attached to the pigment", the rejections under 35 U.S.C. § 103(a) would be overcome. While Applicants respectfully disagree with the rejection, Applicants have amended claims 65 and 80 as suggested by the Examiner in order to advance prosecution of this application.

Applicants therefore believe that claims 65-67, 80, 82, and 84-85 are patentable over Sano et al. in view of Hall et al. and respectfully request that this rejection be withdrawn.

Sano et al. in view of Hall et al. further in view of Johnson et al.

The Examiner has rejected claims 70-72 under 35 U.S.C. § 103(a) as being unpatentable over Sano et al. (U.S. Patent No. 5,690,723) in view of Cooke et al. (U.S. Patent No. 6,110,994), as applied to claims 65-67, 80, 82, and 84-85 above, and further in view of Johnson et al. (U.S. Patent No. 5,837,045).

In paragraph 8 of the Office Action, the Examiner states that difference between Sano et al. in view of Hall et al. and the present claimed invention is the requirement in the claims of modified pigments comprising a second chemical group. The Examiner therefore relies on Johnson et al., stating that this reference, which is drawn to modified pigments, discloses

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pigments having attached chemical groups such as carboxyphenyl or sulfophenyl in order to produce pigments that are more easily dispersible and have greater stability than untreated pigments. The Examiner concludes that, in light of the above, it would have been obvious to one of ordinary skill in the art to attach chemical groups such as carboxyphenyl or sulfophenyl to the modified pigments disclosed by Sano et al. in combination with Cooke et al. in order to produce pigments with improved dispersibility and stability, thereby arriving at the claimed invention.

On page 9 of the Office Action, the Examiner states that if claims 65 and 80 were each amended to i) delete polyester and polyamide from the list of "polymer" and ii) insert that X and X' can be the same or different "and are directly attached to the pigment", the rejections under 35 U.S.C. § 103(a) would be overcome. While Applicants respectfully disagree with the rejection, Applicants have amended claims 65 and 80 as suggested by the Examiner in order to advance prosecution of this application.

Applicants therefore believe that claims 70-72 are patentable over Sano et al. in view of Hall et al. and further in view of Johnson et al. and respectfully request that this rejection be withdrawn.

Allowable Subject Matter

In paragraph 9 of the Office Action, the Examiner states that claim 86 is allowable over the "closest" prior art of record.

Also, in paragraph 10 of the Office Action, the Examiner has objected to claim 58 and 63-64 as being dependent upon a rejected base claim but further states that this claim would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims.

Applicants wish to thank the Examiner for the allowance of claim 86. However, in view of the comments provided herein, Applicants further believe that claims 57-67, 70-72, 80, 82, and 84-85 should also be found allowable.


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Conclusion

In view of the foregoing remarks, Applicants believe that this application is considered to be in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would further expedite the prosecution of the subject application, the Examiner is invited to call the undersigned.

Respectfully submitted,

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